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Science and Technology for Tomorrow's Aerospace Force

Success Story

PROPULSION DIRECTORATE RESEARCHER WINS YATES TECH TRANSFER AWARD



Transfer of the Propulsion Directorate's fluorene polyester (FPE) high performance capacitor dielectric material fills a critical need for advanced, high-performance capacitors for military applications while providing a low-cost solution for multiple applications in commercial products. These films will dramatically increase the performance, reliability, and applicability of the capacitors upon which modern commercial and military electric systems rely.



Air Force Research Laboratory
Wright-Patterson AFB OH

Accomplishment

Ms Sandra Fries-Carr of the directorate's Electrical Technology and Plasma Physics Branch, won the prestigious General Ronald W. Yates Award for Excellence in Technology Transfer. The Air Force Material Command recognized Ms Fries-Carr was recognized for her work in leading the development, transition and transfer of the (FPE) capacitor dielectric material.

Background

While the military requires high performance capacitors to satisfy mission requirements, the military is a low volume user compared to commercial applications. Capacitor and capacitor film manufacturers are reluctant to develop capacitors or film to meet these requirements as long as their current capacitors satisfy high volume commercial customer applications. Also, the manufacturer was ready to discontinue a popular, high-performance film, leaving several military applications without a suitable replacement.

Ms. Fries-Carr responded to this need for a better performing material by initiating a program with industry to develop and produce a capacitor film to meet high-performance military requirements. This effort involved over 17 organizations—2 government and 15 commercial enterprises.

The directorate worked with film producers, as well as capacitor manufacturers, for several years to produce a capacitor-grade, 12-micron film. This film has a high-temperature capability of 250°C (two times the current state-of-the-art) and twice the breakdown strength of current, high-performance films.

A need also exists for thinner films in the 2- to 6-micron range for certain applications. The directorate is currently testing this film. Their efforts resulted in one firm producing the casting process for these thinner films and two other firms using the casting process in a production mode.

Additional information

To receive more information about this or other activities in Air Force Research Laboratory, contact the Technology Transfer Branch, AFRL/XPTT, 1-800-203-6451 and you will be directed to the appropriate Laboratory expert.

Propulsion
Awards and Recognition